National Weather Service (NWS) Service Description Document (SDD)
May 2014
Proposed Enhanced Impact-Based Decision Support Services, for the Emergency Management Community and Government Core Partners, Supporting Events/Incidents Impacting Safety of Life and Property

A. Service Description:

Background

The National Weather Service Roadmap 2.0 is focused on Building a Weather-Ready Nation, which means building community resilience in the face of increasing vulnerability to extreme weather-dependent[1] impacts. To this end, NOAA's National Weather Service (NWS) is enhancing decision support services, improving technology to track and forecast storms, and expanding its dissemination efforts to achieve far-reaching national preparedness. This enhanced, multi-disciplinary approach will aid emergency management, first responders, government officials, businesses, and ultimately the public in making fast, smart decisions to save lives and livelihoods.

NWS defines Impact-based Decision Support Services (IDSS) as provision of relevant information and interpretative services to enable core partners'[2] decisions when weather, water, or climate has a direct impact on the protection of lives and livelihoods (see NWS Weather-Ready Nation Roadmap 2.0). NWS has always recognized that we have a special mission responsibility for our core partners and have provided decision support services to the emergency management (EM) community and government core partners, both remotely (telephone, on-line briefings) and on-site. New factors that NWS is now taking into account in defining our services include:

a) expanding demands of the EM community and government core partners in dealing with increasing numbers and kinds of threats;
b) a revised National Response Framework which requires NOAA support of DHS-defined emergency support functions;
c) incorporation of new support concepts identified in the NWS Strategic Plan and Weather-Ready Nation Roadmap, such as NWS Emergency Response Specialists[3] (ERS) and use of an impacts catalog to identify EM and government core partner contacts and impact thresholds for support; and
d) the growing capacity of America's Weather and Climate Industry (AWCI) to provide support for the EM community and government core partners, driving the need to describe the respective roles for the greater good of the Weather and Climate Enterprise.

[1] Within this document, the term "weather-dependent" is used generally to mean all hydrometeorological and related service areas which the NWS supports (e.g., including tsunamis, space weather, etc.).
[2] The definition of "core partner" can be found in Appendix A of NWSI 1-1003.
[3] As defined in WRN Roadmap 2.0, Emergency Response Specialists are operational personnel proficient in both production and delivery of decision support, including remote and on-scene services, as required by government decision-makers.

What has changed with the new NWS Strategic Plan is the recognition of IDSS as a primary role of NWS, with a greater attention to the skills, training, and operational procedures needed to fully and more effectively provide this type of service.

This SDD provides details on who will be provided IDSS in support of the EM community and government core partners, for what purposes, and the type of support provided. The services described herein apply to all NWS offices, as all NWS offices have always provided decision support to the EM community and government core partners within the context of our mission to protect life and property.

Fundamental Requirement

Through the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), DOC/NOAA has a statutory requirement to support the EM community (see Section B, below, for details of who will receive these services) at the federal, state, tribal and local levels. This Service Description Document describes NWS' IDSS provided for the protection of life and property to the EM community.

The National Preparedness System, mandated by Presidential Policy Directive (PPD)-8: National Preparedness, includes a series of National Planning Frameworks, one for each of the five mission areas: Prevention, Protection, Mitigation, Response, and Recovery. These frameworks and PPD-8 itself emphasize that it takes support from the "whole community" to build and sustain preparedness. The whole community includes federal, state, local, tribal, and territorial governments; private and non-profit sectors; communities; households; families and individuals, all contributing to successful preparedness efforts. This "whole community" concept is echoed in NWS' Weather-Ready Nation efforts. Achieving a Weather-Ready Nation depends not just on NWS, but on an entire Weather Enterprise, our core partners, as well as the educated actions of individuals who are prepared for and can respond to weather-related events[4].

While recognizing "whole community" participation is critical for effective preparedness and response activities, NWS direct support is largely focused on government members of the EM community and government core partners to ensure public safety. It is critical that all elements of the broader community have the weather-preparedness they need, using support provided by the entire Weather Enterprise, to fulfill their role in national preparedness and to support successfully building a Weather-Ready Nation.

Weather Support Environment

Members of the EM community and government core partners obtain weather support in a variety of ways. Some maintain in-house expertise (e.g., a state which employs a State Meteorologist); some contract for ongoing support for specialized services provided by members of AWCI; and some rely wholly on services provided by NWS. In addition, as part of the

[4] Within this SDD, the term event is used to refer to actual hazardous weather events of impact to the public (e.g., hurricane), incidents that are impacted in some way by weather conditions (e.g., chemical release), and large gatherings of people at a venue where public safety is often impacted by hazardous weather conditions (also referred to as "special events").

"whole community" concept, there may be businesses or other government agencies (e.g., private and public sector infrastructure providers) simultaneously supporting members of the EM community and government core partners who are receiving weather support services either in-house or from members of AWCI.

Support to the EM community and other core partners, where weather services may also be provided by those external to NWS is addressed in existing NWS policies. NWSI 10-1806, *NWS Support for Special Events*, describes the NWS roles and responsibilities for supporting the EM community and government core partners during special events. The NWS does not provide special event organizers or venue operators site-specific, tailored forecasts and consulting services. Rather the NWS refers event organizers and venue operators to our existing product suite, as well as recommends they contact our partners in AWCI.

In addition, NWS has long recognized the various levels of weather support arrangements used by our core partners at state/local Departments of Transportation. NWS Guidance for Support of State/Local DOTs describes the NWS focus of support providing our expertise on the evolution and timing of hazardous weather events to help ensure public safety, while our partners in AWCI provide the necessary expertise in helping to guide DOT operations in areas related to recommendations on chemical applications and road/pavement conditions.

As directed by the EM community and government core partners, NWS personnel will work with in-house weather service providers and the firms from AWCI to provide an appropriate level of decision support services to ensure the protection of life and property. NWS coordination with other providers of weather services is critical to ensure consistent messaging is being provided to EM and other government response as well as to the general public.

Types of Support[5]

In providing IDSS to the EM community and government core partners, NWS has strived to maximize the impact of its limited resources by defining three tiers of IDSS.

- Tier 1 – Direct, interactive, support for members of the emergency management community and government core partners;
- Tier 2– Coordination activities supporting high-impact events aimed at the emergency management community and government core partners; and
- Tier 3 - Common services – Routine provision of NWS data/products including alerts of hazardous weather conditions that are provided uniformly to everyone.

These components of IDSS will be described in detail in Section C, below.

To implement our WRN Roadmap, focused IDSS activities are currently taking place at several offices participating in NWS' WRN Pilot Projects, including IDSS for the EM community and government core partners. In addition, through ongoing prototype activities, many other offices across NWS are exploring new ways of providing decision support services. This SDD describes how NWS will incorporate best practices from these prototype activities into our support for the emergency management community and government core partners across NWS.

[5] This SDD does not address outreach and education activities, including NWS StormReady and TsunamiReady programs, provided to NWS core partners and the general public.

B. Who Will be Supported:

It is recognized that NWS cannot provide direct support (e.g., Tier 1) to all "whole community" partners engaged in national preparedness and response activities. NWS will provide the services described in Part C, below, to members of the EM community and government core partners.

As described in the National Response Framework (NRF), the EM community includes "emergency management practitioners, community leaders, and government officials who must collectively understand and assess the needs of their respective communities and organizations and determine the best ways to organize and strengthen their resiliency."

The EM community is a key component described in the NWS definition of "core partners" and the EM community is defined as:

> public safety officials who serve as employees or contract agents of a government agency at the federal, state, local, tribal, or territorial level and are charged with protecting the public from hazards that are influenced by weather or weather-related events. Other members of this community include: safety and emergency personnel, from universities or other large entities with large populations whose roles are functionally equivalent to the public safety officials.

NWS IDSS for the EM community includes support to government emergency operations at the federal, state, local, tribal, and territorial levels (e.g., Incident Command Posts, Emergency Operations Centers, etc.), including support to government operations of Emergency Support Functions (ESF)[6], described in the NRF, for which NOAA has been identified as playing a federal support role.

In addition to the EM community as defined above, NWS plays a role in supporting other government officials responding to or preparing for weather-related events. These government core partners include federal/state/local partners who have missions that require close coordination with the NWS. Examples include (but are not limited to) the FAA, USGS, and water/land management officials.

C. **Type of Support Provided**: Protection of Life and Property

NWS Impact-based Decision Support Services, in various forms, are provided to support decision making by the EM community and government core partners before, during, and after events which are caused by or impacted by conditions for which NWS provides weather, water, and climate services. NWS support is provided to the EM community and government core partners for the protection of life and property. While weather conditions may play additional roles in events which the EM community and government core partners ask NWS to support, NWS support provided to the event is focused on public safety and supporting effective decision-

[6] These emergency support functions, as defined by FEMA's National Response Framework, include transportation, communication, public works and engineering, firefighting, information and planning, logistics management, public health and medical services, search and rescue, oil and hazardous materials response, agriculture and natural resources, energy, public safety and security, long-term community recovery, and external affairs.

making by the EM community and government core partners (see also NWSI 10-1806, *NWS Support for Special Events*).

The capacity of NWS to provide support to the emergency response community and government core partners depends on the tier of IDSS provided. Examples of these IDSS tiers are provided in descriptive scenarios located in the Appendix.

1. Tier 1 – Direct, interactive, support for members of the EM community and government core partners, whether provided in-person or remotely, to inform preparedness, mitigation, response and recovery efforts. This type of support requires a high level of interaction between the decision-maker and NWS staff, to ensure safety of lives and property and is the most resource intensive service for NWS. Upon request, NWS will provide this support for members of the EM community and government core partners, as described in Section B, above.

   NWS Tier 1 support is typically provided for core partner operations that are implemented through coordinating structures consistent with the concepts and principles outlined in the National Incident Management System (NIMS). In support of these coordinating structures (e.g., Incident Command Post, Emergency Operations Center, Joint Field Office, etc.), the NWS provides a common level of awareness and knowledge on the nature and timing of relevant weather events to inform core partner operations. These coordinating structures may include representatives of and participation by organizations that are not covered under the definitions of EM community and government core partners provided in Section B (e.g., critical infrastructure facilities, private sector utility partners). NWS support to these coordinating structures focuses on informing the EM community and its supporting government agencies and organizations. When NWS provides direct support to the EM community/government partners within these coordinating structures, it is recognized that information of value and use in operational efforts is indirectly provided to all response participants. NWS will not, however, provide tailored advice to non-EM community/government partner entities on impacts of weather in areas such as how to expedite restoration activity and how to mitigate for hazardous weather in the future. Specific weather guidance and information beyond that provided to the EM community/government partners may best be served utilizing private sector weather services.

   NWS recognizes the value of coordination during an event to ensure consistent weather messaging to all involved in the support effort and to the general public. Upon request of authorities in charge of the response activities, NWS will work with the EM or official in charge to identify weather support providers involved (i.e., NWS and any in-house or contracted provider of weather services to the EM community and government core partners and other entities involved in the response effort) and will provide an opportunity for coordination to ensure consistency of messaging and that weather-related roles in the support effort are well understood. For example, NWS may activate a private NWSChat room or similar capability for weather service providers supporting the event. Actual capacity to provide coordination will inherently depend upon the scope and nature of the event, available resources, as well as the willingness and ability of the parties to participate in any coordination activities.

Note: Outside the context of an EM-managed coordination structure (e.g., Incident Command Post, Emergency Operations Center, Joint Field Office, etc.), requests to NWS for direct services to individuals or organizations which fall outside the definition of the EM community and government core partners, must be addressed in partnership with a member of the EM community or government core partner.

2. Tier 2– Coordination activities aimed at the EM community and government core partners, supporting high-impact events. This type of support differs from Tier 1 in that it is provided by NWS to multiple (if not many) members of the EM community and government core partners simultaneously, often in the form of a briefing or webinar, with the primary purpose of enhancing the partners' situational awareness of weather impacts associated with significant events. While interaction with NWS staff is possible, the capability to directly address a specific decision-maker's needs is limited.

   When essential for protection of life and property and to ensure consistent communication among all EM entities and government core partners, Tier 2 IDSS participants may be expanded beyond the EM community and government core partners as needed for specific events (e.g., critical facilities). When offering Tier 2 IDSS, NWS will consider requests from authorized Tier 1 IDSS participants for expanded participation to be authoritative.

3. Tier 3 - Common services – Routine provision of NWS data/products including alerts of hazardous weather conditions that are provided uniformly to everyone (including the EM community and government core partners)[7]. These data/products are a valuable source of information in weather-related decision making. They are also the foundation for services provided by the media to inform the public and for diverse services of the weather industry to aid their client's decision making through the entire US economy.

Capacity to Provide Support

NWS aims to provide an equitable level of support to all such entities in the group described in Section B. However, local office management will continue to have the discretion to evaluate resources and in conjunction with the EM community and government core partners, to determine how to most effectively support multiple requests for support, especially during large-scale events with wide-spread impact. This statement does not reflect a change from current level of support provided to the EM community and government core partners. NWS resources available to support all operations are subject to the limitations of budget appropriations and decisions on how best to apply those resources continue to be the responsibility of government managers. In the event of wide-spread impacts, NWS regional and national management will support decisions on allocation of resources to best meet the needs of the EM community and government core partners at the federal, state, local, tribal, and territorial levels.

NWS does not intend to provide Tier 1 IDSS for every large gathering (e.g., every local/recreational sporting event) within an office's area of responsibility. NWS has always maintained situational awareness of these types of events so that life-saving notification can be

[7] Proposed changes to Tier 3 data/products are not covered by this SDD. Individual changes to our data/products will continue to be open for public comment/review as they are proposed.

provided in the event of dangerous weather conditions; however, as described in NWSI 10-1806, *NWS Support for Special Events*, direct IDSS for these special events is provided only upon request by and in support of the EM community and government core partners.

D. Requests for IDSS Support

This section addresses how NWS becomes cognizant of which EM community and government core partner organizations have need of decision support services from our offices. Tier 3 services are provided uniformly to all external users, thus no knowledge of a unique need from the EM community and government core partners is required. Tier 2 services will be provided, as needed, to those approved for Tier 1 services, as described below. NWS will also honor, as resources allow, requests from authorized Tier 1 IDSS participants for expanded participation in Tier 2 services. The remainder of this section focuses on requests for Tier 1 service.

Each NWS office will maintain a record of organizations afforded Tier 1 decision support services for the EM community and government core partners. To do this, NWS will carry out the following:

Step 1- Current IDSS Customers

NWS offices have a long history of providing mission-critical decision support services to the emergency management community and government core partners in their area of responsibility. These well-established IDSS relationships with existing members of the emergency management community and government core partners should be documented (e.g., within the NWS Impacts Catalog) by the NWS office providing the support, but do not require a new request to continue Tier 1 IDSS service.

Step 2 – New IDSS Customers

As NWS continues its efforts to improve IDSS, there is a reasonable expectation that additional organizations will request these services. These requests will be processed in the following manner:

a) Any organization may request Tier 1 IDSS from their local/regional/national NWS office by describing how they meet the criteria described above for membership in the EM community or government core partners. (Note: This is a request to be included as an organization receiving Direct IDSS from NWS when conditions warrant. No additional request/approval is needed for actual support for a particular event.)
b) The reply decision to accept or deny providing Tier 1 IDSS will be provided within 30 days upon receipt of user request.
c) If participation is denied, the office will provide an explanation to the requestor, typically in the form of an email.
d) Denied requests may be appealed through the respective NWS Regional/NCEP Headquarters; the Regional/NCEP Headquarters are to coordinate with the field office/NCEP Center and requesting organization prior to reaching a decision.
e) If the appeal is denied at Regional/NCEP Headquarters, a final appeal may be made through NWS Headquarters. NWS Headquarters will coordinate disposition of appeals with the Regional/NCEP Headquarters, field office/NCEP Center, and requesting organization prior

to reaching a decision. NWS processing of each appeal is not to exceed 45 days from the date of appeal.

NWS may occasionally review the group of organizations supported and/or refine the definition of emergency management community and government core partners provided above.

E. Provision of Services:

Support may be provided either on-site (e.g., at an Emergency Operations Center) or remotely, depending on the nature of the event and available resources. Remote support may be provided by the most appropriate means available, including, but not limited to, telephone, email, chat, on-line briefings/webinars, recorded briefings, live 2-way briefings, social media, etc.

NWS personnel providing IDSS will have expertise and training in the relevant conditions being addressed, be familiar with the needs of the EM community and government core partners and all relevant NWS product content and interpretation, and will coordinate, as appropriate, with other NWS offices and National Centers to ensure a consistent NWS message. In particular, NWS staff, including Emergency Response Specialists, are provided the tools and training to work effectively with members of the EM community and government core partners, as well as to coordinate closely with personnel at NWS offices ensuring consistency between operations supporting the EM community and other NWS operations supporting other core partners and the general public.

NWS is developing an impacts catalog to better understand and document key decision thresholds important to core partners. For the EM community and government core partners, these thresholds will be identified in conjunction with those who have been approved for Tier 1 support.

As resources permit, NWS will provide members of the EM community and government core partners with any relevant NWS information needed by the entity being served in whatever format is most useful. In most cases, NWS will rely on currently existing products/services to provide information to the EM community and government core partners, however, NWS is also committed to using whatever technologies and display formats are necessary (e.g., use of GIS) to communicate critical weather information to emergency management personnel and government core partners within the bounds of current NWS policy.

If a new or enhanced product/service is required to effectively support the EM community and government core partners for a particular event, NWS will determine, after the event, whether the product/service is perishable (only relevant to that particular event) or if it may be applied more broadly across NWS to support the EM community and government core partners on an ongoing basis or to support similar events in the future. If the latter, the new/enhanced product/service will be identified as an "experimental" product/service and made available for public comment/review before a decision is made to continue use of the product/service on an operational basis. This is consistent with the standard practice of seeking input on new/enhanced NWS products/services – see NWSI 10-102, New or Enhanced Products and Services.

F. Emergency Conditions:

If lives and property are immediately at risk, Tier 1 IDSS may be provided to individuals/ organizations without a previous request/approval being in place. For example, in the event of an immediate threat, direct notification by NWS about the threat may be initiated. If the NWS office providing direct IDSS has a reasonable expectation of providing future Tier 1 services to the individual/organization, then request and approval for future services will be obtained after the emergency situation has passed.

G. Feedback Method:

Comments may be provided by August 31, 2014, to nws.idss.comments@noaa.gov .

Appendix

Descriptive Example Scenarios of IDSS for the Emergency Management (EM) Community and Government Core Partners

The scenarios presented in this appendix are meant to provide descriptive examples of how Impact-Based Decision Support Services (IDSS) may be provided to the EM community and government core partners. The intent is to further illustrate the description of services provided in the body of this Service Description Document. Any references to specific products or actions within the scenarios are not intended to represent required actions on the part of the NWS.

Scenario 1: Severe thunderstorms (weather event, local, Tiers 2,3 support)

Over previous months and years, a local NWS Weather Forecast Office (WFO) has engaged in various activities to ensure the local EM community, other core partners, and the general public are able to successfully take advantage of its "Tier 3" Impact-Based Decision Support Services (IDSS). These activities include leading a Severe Weather Preparedness Week, participating in tabletop exercises of severe thunderstorm and tornado disasters, providing a severe weather climatology for the local area, developing public outreach materials, and holding severe weather spotter training classes. As a result of these activities, the EM community is fully familiar and able to take advantage of the standard products issued by NWS, including severe weather watches and warnings.

When an outbreak of severe thunderstorms with potential for development of tornadoes is forecast, the WFO initiates "Tier 2" IDSS, inviting the local EM community and other area core partners to attend a series of multimedia teleconferences describing the severe weather forecast. The goal is to ensure that all have a coordinated understanding of the nature and timing of the forecast events. Local WFO records (e.g., in the WFO impacts catalog) indicate that the emergency manager of the county impacted has requested inclusion on the call of emergency coordination staff from two local hospitals, as well as the utility company providing power to the area. At the request of the local EM, these contacts are invited to join the call, as well.

During the call, the local WFO briefs participants on the nature, severity and timing of the forecast severe weather event. Some time is allowed for questions from participants. NWS responses are focused on ensuring that all on the call have a common understanding of the forecast events and where/when to monitor for new or updated information from NWS as the event evolves.

Scenario 2a: Significant winter storm (weather event, local/state, Tiers 1, 2, 3 support)

An early winter storm is expected to affect a state with significant ice accumulation and heavy wet snow before all of the leaves have fallen off the trees. Outreach and preparedness activities (ensuring successful use of NWS "Tier 3 IDSS) and "Tier 2" multimedia, interactive briefings with NWS the EM community and other core partners have been completed. In anticipation of the storm, the State Emergency Operations Center (EOC) is activated. The local WFO Meteorologist-In-Charge determines resources will allow "Tier 1" IDSS - a 24-hour deployment of Emergency Response Specialists (ERS) to the State EOC. Due to the possibility of impassable

roads, power outages, and communication failures, the state's Incident Commander also activates Emergency Support Functions (ESFs) 1 (Transportation), 2 (Communications), and 12 (Energy). Representatives of electricity and cellular telephone providers, Department of Transportation (DOT) officials, and a private contractor responsible for helping to clear the roads will be among those responding to the State EOC to support these ESFs.

While deployed to the EOC, the NWS ERS coordinates with staff at the WFO using NWSChat to ensure that the ERS and other forecast staff are using consistent information and products to communicate across the broad community of users being supported by NWS. The ERS also joins in on scheduled on-line briefings between the WFO and core partners (i.e., Tier 2 support) to ensure consistent communication is provided both to the EM community, other public safety officials, the media, and the general public.

The NWS ERS primarily interacts with the Incident Commander and the Situation Awareness Section Chief, but everyone else in the EOC will be in a position to monitor any verbal or written briefings provided by the NWS ERS. The focus of ERS briefings is on the timing, location, amounts, and rate of precipitation, as well as wind and temperature, to support the aggregate life-safety preparation and response. The NWS ERS does not, for example, work with the contractor on the types of materials to use when treating roads, nor do they work with the energy providers on temperature trend forecasts for strategic business planning (e.g., transactions on the electricity market). The ERS would refer the companies to our partners in America's Weather and Climate Industry for support of this nature.

Scenario 2b: Significant winter storm (weather event, local/state, Tiers 1, 2, 3 support; EM has in-house meteorological support services)

An early winter storm is expected to affect a state with significant ice accumulation and heavy wet snow before all of the leaves have fallen off the trees. Outreach and preparedness activities (ensuring successful use of NWS "Tier 3 IDSS) and "Tier 2" multimedia, interactive briefings with NWS the EM community and other core partners have been completed. The EM in this area benefits from in-house meteorological services provided by the State. In anticipation of the storm, the State Emergency Operations Center (EOC) is activated. Due to the possibility of impassable roads, power outages, and communication failures, the state's Incident Commander also activates Emergency Support Functions (ESFs) 1 (Transportation), 2 (Communications), and 12 (Energy). Representatives of electricity and cellular telephone providers, Department of Transportation (DOT) officials, and a private contractor responsible for helping to clear the roads will be among those responding to the State EOC to support these ESFs.

The local WFO Meteorologist-In-Charge determines resources will allow "Tier 1" IDSS. Because the EM uses the service of an in-house meteorologist, NWS IDSS is provided remotely. As the WFO has done in the past per EM request, the ERS coordinates closely with the EM's in-house meteorologist and is present via remote connection in EOC coordination briefings. During the briefings, the ERS confirms that information provided on the timing, location, amounts, and rate of precipitation, as well as wind and temperature are consistent with information and messaging being provided to the media and the general public. In addition he relates a summary of spotter reports that have been received confirming the continuation of snowfall across the area, as forecast.

Scenario 3: Major hybrid tropical/extra-tropical system (weather event, national significance, Tier 1 support)

A dangerous "hybrid" (tropical/extra-tropical) system is expected to impact several states and large cities from the mid-atlantic to northeast US. In anticipation of the disaster, numerous EOCs at the local, tribal, state, regional, and national level are activated. The NWS makes a determination in coordination with the EM community, based on expected scale and severity of the event and the resources available at the time, as to which EOCs can be supported with "Tier 1" on-scene ERS deployments and which will be supported via remote "Tier 1" and "Tier 2" support from the WFO. All relevant ESFs are activated at the EOCs, including private sector representatives from a variety of critical commerce sectors (e.g., transportation, energy, communication, retail, health care).

When deployed, the NWS ERS coordinates with the Incident Commander and Situation Awareness/Planning personnel to identify critical participants for weather coordination. EM staff identify that 1 retail, 1 health care, and 2 communications infrastructure entities are employing private weather support. The ERS identifies an ad hoc NWSChat room for weather-related coordination for the duration of this event and all weather service providers are invited to coordinate with NWS via NWSChat to ensure all parties are providing similar messaging to those they support.

Whether deployed or remotely supporting an EOC, the NWS provides regular overview briefings, both written and verbal, to the Incident Commanders and Situation Awareness/Planning personnel. These materials focus on the various meteorological aspects of the hazardous weather event and are generally made available to all EOC participants. Discussion with EOC personnel are focused on key life-safety decisions such as providing weather input to evacuation decisions, road closures, protection of personnel and infrastructure, and so on.

The unusual nature of the event requires "perishable" products to be provided to the Incident Commanders - that is, specialized products specific to the event and its response. Heavy rainfall along a major river combined with debris is creating a concern for an imminent failure of a dam/lock. The NWS River Forecast Center uses their models to estimate the flood wave and associated impacts in the event the dam fails. This impact information is shared with NWS ERS' deployed at the FEMA Regional Response Coordination Center (RRCC) and is provided to ESF-3 Army Corps of Engineers personnel. In addition, after landfall of the storm, products are generated to integrate new NOAA aerial photography and shoreline survey information with updated NOAA hydrographic surveys, and NWS marine data/forecasts covering key shipping channels in order to safely re-open the ports and enable emergency response activities. These products (not available to the general public) organize existing information available from NOAA in a manner to make it more directly and efficiently useful to EOC staff in developing recovery strategies, facilitating search and rescue efforts, and identifying hazards to navigation.

Due to the time-critical need for the products, they would not be subject to the typical NWS new/experimental product processes. However, after action reviews with the response agencies

capture feedback on the efficacy of these products a determination would be made whether similar future events would include similar products. If similar products are planned to be used to support future events, the product would be fully described and undergo the standard public comment/review process governing new/enhanced products/services (see http://www.nws.noaa.gov/directives/sym/pd01001002curr.pdf).

To help ensure the integrity of public communications infrastructure, an Incident Commander has included a representative of three cellular network providers in the EOC. Cell network providers A and B have ongoing support from private sector weather service providers and arrive in the EOC up-to-speed on the potential impacts to their network. Plans are already underway to shore up their network and maintenance crews are on standby to implement the cell network providers' recovery plans. The cell network providers A and B coordinate with their weather services providers to determine if they should relay the NWS information they receive in the EOC to their weather service providers or if they will be monitoring the NWS-provided chat room for updates. Either option will ensure they are aware of the messaging that is being provided by NWS.

Cell network provider C does not retain the services of a private sector weather provider. This cell network provider has access to the basic information provided by the NWS ERS to the Incident Commander and EOC personnel related to the severity and timing of weather impacts. Cell provider C uses the information to help ensure the safety of any recovery efforts as they are deployed. The representative from provider C makes a note on the Weather-Ready Nation pamphlet given to him by the NWS ERS, to speak to company management about employing private weather support services from AWCI as a means to avoid the likely heavy disruption in service that they expect their customers will experience.

Scenario 4: Sailing competition (planned outdoor event, Tier 1 support)

A large, multi-day sailing competition annually draws a million people including spectators, competitors, and staff. The NWS, at the request of the event's multi-agency EOC Incident Commander, deploys an ERS to provide "Tier 1" support, focusing on hazardous weather and water information such as lightning, high seas, strong winds, and low visibility. The ERS also proactively runs dispersion models in case of a hazardous materials release and monitors winds aloft and ceiling forecasts for the safety of aviation activities. The ERS provides daily verbal and written briefings, as well as special briefings when necessary, to guard against threats to safety to fans and participants and support Coast Guard operations and any rescue efforts.

The NWS ERS does **not** support the race organizers (e.g., forecasts for making profit by selling umbrellas or lemonade) or to competitors (e.g., wind forecasts to win the race). The NWS ERS also does not interfere in a contract between race organizers and a private vendor to deploy wind instruments around the course, but does work with the vendor to obtain the data in support of the EOC.

Scenario 5: Oil spill response (unplanned, non-weather event)

An oil pipeline bursts unexpectedly, with oil spilling into a tributary of a major river. A multi-agency EOC is activated in response. Two co-equal Incident Commanders are named, one representing the private sector company owning the pipeline, the other a Federal Emergency Manager. The NWS determines, based on available resources and the significance of the event, to staff the command center during regular business hours and provide "on call" remote support during nights and weekends with no hazardous weather. The primary purpose of the NWS support is safety of the response teams from threats such as lightning, extreme heat or cold, flooding of the tributary/river, and so on. Interpretation of hydrologic (river) modeling provided by NOAA and other agencies is also critical to the response, through interaction with a US Army Corps of Engineers official also deployed to the EOC. While on-site, a representative from the pipeline company asks the ERS if she would be able to provide long-term temperature trends to support improved efficiency in pipeline maintenance for the future. After a brief conversation with regional managers to confirm the appropriate response, the ERS responds that this type of support is more appropriately provided by our partners in AWCI and refers the pipeline company to the NWS listing of private sector weather providers as listed at http://www.weather.gov/im.